CITY OF GREENSBORO 2003 WATER QUALITY RESULTS

MONITORED LEAVING THE TREATMENT PLANT

				RESULTS						
SUBSTANCE	**UNIT**	**HIGHEST LEVEL ALLOWED EPA MCL[3]**	**PUBLIC HEALTH GOAL MCLG[4]**	**ANNUAL COMPLIANCE ANALYSES**	**AVERAGE OF ROUTINE ANALYSES**	**RANGE**	**VIOLATION**	**COMMENT**	**WHY MONITORED OR REGULATED**	**POTENTIAL SOURCE OF SUBSTANCES**
Alkalinity, Total	mg/L[2]	NOT REGULATED			31	25–38	NO			Erosion of Natural Processes
Aluminum	mg/L	NOT REGULATED[5]	0.20		0.17	0.02–0.46	NO	Secondary Standard[5]	Colored water	Residual from the Treatment Process
Antimony	mg/L	0.006	0.006	<0.003[6] ND[7]			NO		Increased cholesterol; decreased blood sugar	Solder; electronics; fire retardants
Arsenic	mg/L	0.010	zero	<0.005 ND			NO		Circulatory problems; increased risk of cancer	Erosion of natural deposits
Asbestos	MFL[8]	7	7	<0.17 ND			NO	Last regulatory sampling Dec. 2002	Increased risk of benign intestinal polyps	Erosion of natural deposits
Barium	mg/L[2]	2.000	2.000	<0.400 ND			NO		Increase in blood pressure	Erosion of natural deposits; metal refinery
Beryllium	mg/L	0.004	0.004	<0.002 ND			NO		Intestinal lesions	Metal refinery; coal burning factory
Cadmium	mg/L	0.005	0.005	<0.001 ND			NO		Kidney damage	Corrosion of galvanized pipes; natural erosion
Chloride	mg/L	NOT REGULATED[5]	250		7.1	5.3–10.2	NO	Secondary Standard[5]	Salty taste	
Chlorine, Free residual	mg/L	4.0 MRDL[11]	4.0 MRDLG[12]		1.71	**T**[1] 0.35–2.50 **M**[1] 1.00–2.50	NO	Free Chlorine residual tested hourly and monitored continuously on-line	Eye/nose irritation; stomach discomfort	Water additive used to control microbes
Chromium	mg/L	0.100	0.100	<0.020 ND[7]			NO		Allergic dermatitis	Erosion of natural deposits; steel mills
Color	CU	NOT REGULATED[5]	15		1.4	0.3–3.1	NO	Secondary Standard[5]	Visible tint	
Copper (see *Monitored at Customers' Tap* below)	mg/L[2]	NOT REGULATED[5]	1.0		<0.01	0.01–<0.01	NO	Secondary Standard[5]	Metallic taste; blue-green stains on fixtures	Corrosion of household plumbing
Cyanide	mg/L	0.200	0.200	<0.040 ND			NO		Nerve damage or thyroid problems	Metals, plastic, fertilizer factory discharges
Fluoride	mg/L	4.000	2.00	**T**[1] 0.85 **M**[1] <0.01	0.46	0.06–0.97	NO		Excess can cause tooth discoloration	Water additive which promotes strong teeth
Hardness, Total	mg/L	NOT REGULATED			36	30–43	NO	Considered to be moderately soft	Too soft is corrosive to plumbing	Natural deposits and the treatment process
Iron	mg/L	NOT REGULATED[5]	0.300	<0.060 ND[7]	<0.100	<0.100	NO	Secondary Standard[5]	Rusty stains–laundry; metallic taste; sediment	Plumbing corrosion and natural deposits
Manganese	mg/L	NOT REGULATED[5]	0.050	<0.010 ND	<0.010	<0.010–0.010	NO	Secondary Standard[5]	Stains on fixtures, laundry; bitter metallic taste	Plumbing corrosion and natural deposits
Mercury	mg/L	0.002	0.002	<0.0004 ND			NO		Kidney damage	Landfill and cropland runoff; natural deposits
Nickel	mg/L	NOT REGULATED	0.100	<0.100 ND			NO		Heart and liver damage; skin irritation	Erosion of natural deposits
Nitrate as Nitrogen	mg/L	10.0	10.0	<1.00 ND	0.26	0.12–0.46	NO		Blue baby syndrome at high levels	Fertilizer runoff; sewage; natural deposits
pH	SU	NOT REGULATED[5]	6.5–8.5	**T**[1] 7.20 **M**[1] 7.37	7.5	7.3–8.0	NO	Secondary Standard[5]	Low pH=corrosion; high pH=mineral scale	
Phosphorus, Total	mg/L[2]	NOT REGULATED			0.25	0.20–0.33	NO		Treatment process to control plumbing corrosion	Fertilizer runoff; Corrosion control treatment
Selenium	mg/L	0.050	0.050	<0.010 ND			NO		Circulatory problems	Mine waste; natural deposits
Sodium	mg/L	NOT REGULATED		**T**[1] 7.10 **M**[1] 15.1	9.3	6.2–15.6	NO			Naturally occurring minerals in the soil
Sulfate	mg/L	NOT REGULATED[5]	250	**T**[1] 18 **M**[1] 19	18.9	16.2–22.8	NO	Secondary Standard[5]	Salty taste	Naturally occurring minerals in the soil
Total Dissolved Solids (TDS)	mg/L	NOT REGULATED[5]	500		79	60–91	NO	Secondary Standard[5]	Hardness; deposits; color; stains, salty taste	Erosion of natural deposits; treatment process
Thallium	mg/L	0.002	0.0005	<0.001 ND[7]			NO		Kidney, liver, intestinal problems	Leaching from ore-processing
Turbidity	NTU[10]	TT[9] 95% samples <0.30	N/A[14]		**T**[1] 0.05 **M** 0.05	**T** 0.01–0.54 **M** 0.01–0.28 **T** 99.95%<0.50 **M** 100%<0.50	NO		Indicates water quality and filtration effectiveness for removing microorganisms	Soil Runoff
Zinc	mg/L[2]	NOT REGULATED[5]	5.0		<0.01	<0.01	NO	Secondary Standard[5]	Metallic taste	Corrosion plumbing fixtures; industrial waste
VOLATILE ORGANIC CHEMICALS							NO	50+ VOC'S tested; All others–Not Detected ND		
Chloroform	µg/L[16]	NOT REGULATED	N/A	**T**[1]14.3 **M**[1]18.2			NO		Increased risk of cancer	By-product of drinking water disinfection
Bromoform	µg/L	NOT REGULATED	zero	**T**<0.5 **M** <0.5			NO		Increased risk of cancer	By-product of drinking water disinfection
Bromodichloromethane	µg/L	NOT REGULATED	zero	**T** 2.95 **M** 2.98			NO		Increased risk of cancer	By-product of drinking water disinfection
Chlorodibromomethane	µg/L	NOT REGULATED	60.0	**T** 0.93 **M** 0.84			NO		Increased risk of cancer	By-product of drinking water disinfection
DISINFECTION BY-PRODUCT PRECURSORS										
Total Organic Carbon	mg/L	TT[9]			**T** 2.44**M** 2.20	**T**[1] 2.06–2.97**M** 1.67–2.84	NO	Compliance based on 35-45%removal	TOC+chlorine form carcinogenic compounds	Naturally present in the environment
SYNTHETIC ORGANIC CHEMICALS										Pesticide/herbicide runoff
26 SOC's	mg/L[2]	REGULATED		Not Detected ND			NO	Includes pesticides and herbicides		
13 SOC's	mg/L	NOT REGULATED		Not Detected ND			NO	Next regulatory sampling 2006		
RADIONUCLIDES								Next regulatory sampling 2007		
Gross Alpha	pCi/L[13]	15	zero	**T**[1] <3 **M**[1] <3 ND[7]			NO		Increased risk of cancer	Erosion of natural deposits
Uranium	pCi/L	20	zero	**T** 3.8 **M** <2			NO		Increased risk of cancer; kidney toxicity	Erosion of natural deposits
Radium 226	pCi/L	3	zero	**T** <1 **M** <1 ND			NO		Increased risk of cancer	Erosion of natural deposits
Radium 228	pCi/L	2	zero	**T** <1 **M** <1 ND			NO		Increased risk of cancer	Erosion of natural deposits
Gross Beta	pCi/L	50	zero	**T** <4 **M** 4.1			NO		Increased risk of cancer	Decay of natural and man-made minerals

CITY OF GREENSBOR 2003 WATER QUALITY RESULTS

MONITORED IN THE DISTRIBUTION SYSTEM

				RESULTS						
SUBSTANCE	UNIT	HIGHEST LEVEL ALLOWED EPA MCL	PUBLIC HEALTH GOAL MCLG	LEVEL DETECTED	AVERAGE	RANGE	VIOLATION	COMMENTS	WHY MONITORED OR REGULATED	POTENTIAL SOURCE OF SUBSTANCES
DISINFECTION BY-PRODUCTS										
Total Trihalomethanes TTHM	µg/L[16]	80.0	N/A		66.0	28.4–140.4	NO		Liver, kidney problems; increased risk cancer	By-product of drinking water disinfection
Chloroform	µg/L	NOT REGULATED	N/A		56.4	20.3–63.3	NO			
Bromoform	µg/L	NOT REGULATED	zero		<1.0	ND	NO			
Bromodichloromethane	µg/L	NOT REGULATED	zero		9.6	5.4–11.5	NO			
Chlorodibromomethane	µg/L	NOT REGULATED	60.0		<1.0	<1.0–2.2	NO			
Total Haloacetic Acids HAA5	µg/L	60.0	N/A		34.3	25.5–64.7	NO		Increased risk of cancer	By-product of drinking water disinfection
Monochloroacetic Acid	µg/L	NOT REGULATED	N/A		<2.0	<2.0–2.9	NO			
Dichloroacetic Acid	µg/L	NOT REGULATED	zero		20.6	15.8–24.9	NO			
Trichloroacetic Acid	µg/L	NOT REGULATED	30.0		22.1	17.1–30.0	NO			
Monobromoacetic Acid	µg/L	NOT REGULATED	N/A		<1.0	ND	NO			
Dibromoacetic Acid	µg/L	NOT REGULATED	N/A		<1.0	<1.0–1.1	NO			
Chlorine, Free residual	mg/L	4.0 MRDL	4.0 MRDLG		1.09	0.02–3.96	NO	Tested at the same time as Coliform bacteriological samples collected	Eye/nose irritation; stomach discomfort	Disinfection additive used to control microbes
Coliform Bacteria (includes fecal and E. Coli)		<5.0% positive	zero		0.0%		NO	1,875 distribution samples in 2003	Indicator of potentially harmful organisms	Naturally present in the environment

MONITORED AT THE CUSTOMER'S TAP

Lead Next sampling June–Sept. 2004	µg/L[16]	15.0 AL[15]	zero	100% of homes tested were below A.L.	<3.0–9.0	NO	50 homes at-risk for Copper and Lead	Affects children's learning ability	Corrosion of Household Plumbing
Copper Next sampling June–Sept. 2004	mg/L[2]	1.30 AL	1.30	100% of homes tested were below A.L	0.004–0.177	NO	plumbing corrosion tested every 3 years	Gastrointestinal upset; liver/kidney damage	Corrosion of Household Plumbing

DEFINITIONS AND KEY TO ABBREVIATIONS USED IN THE TABLE

1	**T**	Townsend Water Plant, located northeast of Greensboro, with source water supplied by Lake Townsend
	M	Mitchell Water Plant, located in central Greensboro, with source water supplied by Lake Brandt
2	**mg/L**	Milligrams per Liter equivalent to Parts per Million (ppm). (Corresponds to one penny in $10,000, or one minute in two years.)
3	**MCL***	Maximum Contaminant Level, enforceable standards, which are established by EPA to protect the public against consumption of drinking water contaminants that present a risk to human health.
4	**MCLG**	Maximum Contaminant Level Goal, the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety and are non-enforceable public health goals.
5	**Secondary Standards**	Non-enforceable guidelines for drinking water due to aesthetic considerations such as taste, color and odor. These substances are not considered a risk to human health at the established levels.
6	**<**	Less than symbol, which means below the detection limit of the instrument
7	**ND**	Non-Detects, laboratory analysis indicates that the contaminant is not present at the level of detection set for the particular methodology used
8	**MFL**	Million Fibers per Liter, count of asbestos fibers that are longer than 10 micrometers
9	**TT**	Treatment Technique, a required process intended to reduce the level of a contaminant in drinking water
10	**NTU**	Nephelometric Turbidity Unit, measures the cloudiness of the water; at no time can the turbidity go above 1.0 NTU, and must not exceed 0.30 in 95% of daily samples in any month
11	**MRDL**	Maximum Residual Disinfectant Level, the highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
12	**MRDLG**	Maximum Residual Disinfectant Level Goal, the level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of disinfectants to control microbes.
13	**pCi/L**	Picocuries per Liter is a measure of radioactivity in water
14	**N/A**	Not-Applicable, information not applicable/not required for the water system or for that particular regulation
15	**AL**	Action Level, the concentration of a contaminant that triggers treatment changes or other requirements. If more than 10% of tap samples exceed the AL for Copper and Lead, water systems must take additional steps.
16	**µg/L**	Micrograms per Liter equivalent to Parts per Billion (ppb) Corresponds to one penny in $10,000,000 or one minute in 2,000 years
	***MCL note**	MCL's are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink 2 Liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.